

REMARKS

The Office Action of August 25, 2008, has been carefully considered.

The drawings have been objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. It is alleged that the bars provided with projections claimed in Claim 21 and the heat shield recited in Claims 26 and 27 is not shown in the drawings.

Concerning the projections in the form of cooling fins recited in Claim 21, this feature is shown in Figures 3(a) and 3(c), and specifically described at page 12, lines 3-4: "The projection 230 is provided with cooling fins 231 to increase the lateral conduction flux."

As to the heat shield, reference is made to the Supplemental Amendment filed on February 19, 2008. In that Supplemental Amendment, the specification was amended at page 1, after line 30, to recite that "Figure 1(b) also shows an optional sheet metal heat shield 12..."

Accordingly, the subject matter of Claims 21, 26 and 27 is clearly shown in the drawings.

Objection has been raised to the specification based on the descriptions of Figures 1, 2, 3 and 4, and the specification has now been amended so that it is commensurate with the figure numbers currently in the drawings.

Claim 21 has been rejected under 35 USC 112, second paragraph, as being indefinite regarding projections in the form of cooling fins. As has been explained above, this claim relates to structures 230 and 231, and withdrawal of this rejection is requested.

Claims 18, 20 and 21 have been objected to on the basis that the phrase "the housings" in Claim 18 lacks proper antecedent basis, and this matter has now been corrected.

Claims 12-15 have been rejected under 35 USC 102(b) as anticipated by Agren et al.

Claim 12 has now been amended to incorporate recitations from Claims 13 and 14, and now recites that the heat dissipating structure is formed in at least one of the at least one brake lining and the carrier-plate, and at least one of the at least one brake lining and the carrier-plate comprises grooves that form holes having axes along directions substantially parallel to the planar friction surface, the holes being through holes open at ends thereof.

The structure as claimed is clearly distinguished from Agren et al. Agren et al discloses a disk brake comprising a plurality of brake linings attached to a disk by rivets, the plurality of brake linings including overlapping portions. It is noted in general that these linings which are attached to the disk by rivets are different from those of the invention which are generally attached by brazing, as recited Claim 23.

Agren et al does disclose what is considered to be a heat dissipating structure, specifically channels 42 extending between projections 28, 30 and 32, at the interface between the lining 12'' and the disk 22. What Agren et al does not disclose is the presence of grooves that form holes having axes along directions substantially parallel to the planar friction surfaces, the holes being through holes open at ends thereof. In Agren et al, the space formed between the carrier-plate and the disk extends over part of the inside face of lining 12'', with obstacles to the flow of air formed by projections 28, 30 and 32. Moreover, since the linings 12'' have no open free lateral sides, the air can circulate only radially, even though this direction does not necessarily correspond to the movement of air close to the brake. This can be seen clearly from Figure 1 of Agren et al.

Accordingly, the heat dissipating structure specifically claimed differs from the cooling channels described by Agren et al, and withdrawal of this rejection is requested.

Claims 12-16 and 22 have been rejected under 35 USC 102(b) as anticipated by Nakamura.

Nakamura discloses a ventilated pad for a bicycle disk brake. Reference is made in the Office action to Figures 12A-12C, showing a disk brake pad comprising at least one brake lining 104, and a carrier-plate 128 to which the brake lining is affixed which extends beyond the brake lining in at least one of length and width. The brake pad is alleged to be provided with a heat dissipating structure 150, 154 which directs heat flux to be dissipated in at least one direction substantially parallel to the planar fixing surface.

In Nakamura, however, there is no heat dissipating structure formed at the interface between the friction pad and the metal backing plate, since grooves 120, 132 and 134 are formed on an outer face of the metal backing plate, vertical holes 140 cannot be considered as being "a heat dissipating structure formed at an interface," and the cooling fins 150 are also not formed at the interface. Moreover, there is no disclosure or suggestion that the means for ventilating the pad could be a heat dissipating structure which directs the heat flux in at least one direction substantially parallel to the planar friction surface. In Nakamura, there is nothing which would guide air so as to direct the heat flux in this manner.

Thus, Nakamura also does not anticipate the claimed invention, and withdrawal of this rejection is requested.

Claims 17-19 have been rejected under 35 USC 103(a) over Agren et al in view of Lewis and Apunevich et al.

The Lewis reference was discussed in detail in the previous Amendment, and is considered to be clearly

distinguished from the claimed invention. Apunevich et al has been cited to show a heat conducting material, but neither of these references cures the defect of Agren et al and withdrawal of this rejection is requested.

Claims 23 and 24 have been rejected under 103(a) over Agren et al in view of Myers. Myers has been cited to show the use of a disk brake pad where the carrier-plate is made of metal and attached to the lining by brazing. Nevertheless, the lining attached by brazing is fundamentally different from the type of brake lining disclosed by Agren et al, and Applicants submit that one of ordinary skill in the art would not make the substitution.

Withdrawal of this rejection is requested.

Claim 25 has been rejected under 35 USC 103(a), alternatively over Agren et al in view of Ogiwara and Nakamura in view of Ogiwara. Ogiwara has been cited to show a brake lining comprising graphite, ceramic powder and metallic chips bonded by a resin, but does not otherwise cure the defects of the Agren et al and Nakamura references. Withdrawal of this rejection is requested.

Claims 26 and 27 have been rejected under 35 USC 103(a) over Nakamura in view of Hahm. Hahm has been cited to show the use of a heat shield disposed over a surface of the carrier-plate, but does not otherwise cure the defects of the Nakamura reference, and withdrawal of this rejection is requested.

The allowability of claims 20-21 over the art of record has been noted.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

LAW OFFICES  
DENNISON, SCHULTZ & MACDONALD  
SUITE 105  
1727 KING STREET  
ALEXANDRIA, VIRGINIA 22314-2700  
703 837-9600

Respectfully submitted,



Ira J. Schultz  
Registration No. 28666  
Attorney for Applicants  
(703) 837-9600, ext. 23